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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,729	10/22/2003	Dae-Ho Choo	8054L-201T	3986

7590 07/02/2007
F. Chau & Associates, LLC
130 Woodbury Road
Woodbury, NY 11797

EXAMINER

SELLMAN, CACHET I

ART UNIT	PAPER NUMBER
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1762

MAIL DATE	DELIVERY MODE
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07/02/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/689,729

Applicant(s)

CHOO ET AL.

Examiner

Cachet I. Sellman

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply, and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 21-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I claims 1-20 in the reply filed on 5/25/2007 is acknowledged. The traversal is on the ground(s) that although the groups are distinct there is no undue burden examining the entire application therefore any distinctions can be simultaneously searched and examined. This is not found persuasive because the examiner acknowledges the two groups are distinct and further more as stated in the restriction requirement dated 4/26/2007, the apparatus does not need the further limitations of irradiating onto a carbon-carbon double bond, etc therefore the method would required an undue amount of searching over the apparatus.

The requirement is still deemed proper and is therefore made FINAL.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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4. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Choo et al. (US 2004/0092617 A1).

The applied reference has a common inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Choo et al. discloses a process for aligning a liquid crystal which comprises irradiating an atomic beam onto a thin film having carbon-carbon double bonds and transforming the double bonds into carbon single bonds and a radical state (abstract, paragraphs 0107-0111); and combining a polarity preserving material with the polarized functional group to preserve its polarity (0117 –0119; 0180-0185) as required by **claim 1**.

The preserving material can be a hydroxyl group where water vapor is supplied to the film to combine with the polarized group (0187-0192) as required by **claims 2-3**.

Choo et al. teaches that water can also be provided to the surface of the film then irradiated with UV in order for hydrogen ion to combine with the polarized group (0195-0196) as required by **claim 4**.

The preserving material can be dissociated nitrogen gas which is provide sat a pressure below atmospheric, the nitrogen can be dissociated by heating to a

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temperature above 2500K or using electric fields (0260, 0204-0210) as required by **claims 5-7**.

The preserving material can be hydrogen ions which are provided by dissociating hydrogen gas by heating to a temperature of 2500k under vacuum or applying electric fields to the gas (0199-0202) as required by **claims 8-10**.

The polarized functional group can be formed by using a first ion beam, which is formed by dissociating a argon gas into ions by heating to 2500 K then using a plasma generating electric field and accelerating the ions, that forms a first angle with respect to the thin film (0270-0272) ; transforming the beam into a second ion beam where a cross section of the second ion beam has a square shape then transforming the beam into an atomic beam (0274, 0278) as required by **claims 11-15**.

The first beam passes through an outlet of a housing to be focused where the housing can be rectangular in shape (0276) as required by **claims 16-17**. The atomic beam is formed by intersecting the second beam with an electron beam which is formed by heating a tungsten filament to emit electrons and accelerating these electrons in a direction that is perpendicular to a direction of the second beam (0278, 0152-0156) as required by **claims 18-19**. The electrons are accelerated because of an electrode having positive polarity, which is disposed at an opposite position to the tungsten filament as required by **claim 20**.

5. Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Callegari et al. (US 6665033 B2).

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Callegari et al. discloses a process for forming an alignment film by modifying the surface of a film using ion beam. A diamond like carbon film, which includes carbon-carbon double bonds, is irradiated with an ion beam and combined with water vapor in order to saturate the dangling bonds, which result from the ion beam (abstract, col. 3, lines 1-22, col. 4, lines 25-51, col. 7 lines 30-46) as required by **claims 1-3**.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cachet I. Sellman whose telephone number is 571-272-0691. The examiner can normally be reached on Monday through Friday, 7:00 - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cachet I Sellman

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Examiner
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cis

/William Phillip Fletcher III/
Primary Examiner

June 24, 2007